Visual-Performance Feedback on Acknowledgement within a Positive Behavior Intervention and Support System

By

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Visual-Performance Feedback on Acknowledgement within a Positive Behavior Intervention and Support System

By
Robin Gardner

The University of Wisconsin-Eau Claire, 2020
Under the Supervision of Dr. Mary Beth Tusing

The study examined whether providing teachers with visual-performance feedback (VPF) on their frequency of acknowledgement to students for desired school behavior within a Positive Behavior Interventions and Supports (PBIS) system resulted in change to the frequency with which teachers acknowledged students or referred students for disciplinary action. Acknowledgement frequency data was collected weekly and a graph was provided to teachers in their mailboxes for review. Data was also collected on weekly frequency of Office Discipline Referrals (ODRs). Results found mixed outcomes and variability across teachers regarding their frequency of acknowledgment to students week to week with the majority of teachers maintaining low frequency or decreasing in their frequency of ODRs. On a social acceptability survey, teachers reported that VPF was non-intrusive and that it helped them to be aware of their acknowledgement to students but that it did not have a significant impact on their frequency of
acknowledgement. Results are discussed in terms of variability, trend, change in level, and Percent of Nonoverlapping Datapoints (PND).

Thesis Adviser (Signature) Date
Acknowledgments

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I would also like to acknowledge the contributions to this study afforded by the Elementary School data collection site. Due to the school district’s support and willingness to participate, data was able to be confidentially collected. The teachers in the sample and the elementary school principal also are deserving of a special thanks. Teachers within the sample showed their openness and acceptance of this project by consenting to participate and consistently submitting data. This commitment throughout the ten week data collection process is appreciated.

In addition, the support of the school principal is recognized. The principal provided great insight to fluctuations in data that otherwise could have gone unnoticed, like the absence of data on acknowledgement rates during Dr. Seuss week. I am also happy to hear the principal report that this study prompted ideas for future use within their system of Positive Behavior Interventions and Supports.

Finally, I want to thank my mom, husband, family, and co-workers for their love and support of my training and career as a School Psychologist! There are certainly stressful days, but the important work is worth it and it is comforting to know that I always have family and supportive co-workers by my side.
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CHAPTER I

Introduction

This chapter will provide a background on the evidence-base for implementation of Positive Behavior Interventions and Supports (PBIS), primarily at the primary prevention or Tier 1 level of support. It will also review research on Visual-Performance Feedback (VPF) as a method for enhancing teacher fidelity to behavioral interventions. VPF shows promise in enhancing implementation of a critical PBIS feature, the acknowledgement system, through the systematic collection of permanent product data.

Positive Behavior Interventions and Supports

PBIS is a school-wide multi-level system of supports that is implemented in more than 25,000 PK-12 schools across the United States and world to improve the social-emotional-behavioral and academic outcomes of all students (OESP Technical Assistance Center on Positive Behavior Interventions and Supports, 2019). PBIS practices are grounded in a three-tiered public health model that represents an array of preventative practices and behavioral interventions (Sugai, 2007). Sugai and Horner (2006) suggested that establishing durable systems-wide practices based on prevention and behavioral analytic theory could reduce student problem behavior and improve academic outcomes. A meta-analysis of PBIS effectiveness (Lee & Gage, 2019), which included 29 studies across the United States and Europe and data from over 8,000 schools, found strong positive effects of PBIS in their systematic review. Outcomes associated with decreases in problem behavior and increases in student perceptions of safety and staff perceptions of organizational health according to the Student Safety Survey and Organizational Health Inventory of Elementary Schools were found. Academic outcomes in reading and
math were also positively affected as reflected in increases in the percent of students proficient on state accountability measures. More specifically, studies found reduction of out-of-school suspensions, office discipline referrals, expulsion, referral to law enforcement, bullying and peer-related issues, and incidents of emotional/behavioral disability identification. Conversely, studies also found improved academic outcomes and overall school climate through successful implementation of PBIS Tier 1 practices (Bradshaw et al., 2008; Horner, Sugai, & Anderson, 2010; Lee & Gage, 2019; Nelson, Martella, & Garland; 1998; Sugai, 2007; Sugai & Horner, 2006).

PBIS Tier 1 Implementation

Tier 1 practices in a PBIS system of support include explicitly and proactively teaching pro-social school behaviors, reinforcing desired student behavior across all school settings through an acknowledgement system, and utilizing consistent discipline procedures (Sugai & Horner, 2006; Sugai, 2007). In earlier research on classroom behavioral practices now embedded in PBIS implementation, Nelson, Martella, and Geland (1998) found that staff behaviors including arrangement of academic environment, explicit instruction on rules and routines, increased supervision, and a systematic response to disruptive behavior led to a significant reduction in office discipline referrals.

The Center on Positive Behavior Interventions and Supports’ Blueprint and Self-Assessment Guide (2004) indicates that successful Tier 1 implementation is necessary prior to implementation of the more intensive array of PBIS behavioral interventions (Tier 2 and Tier 3). The amount of time it takes for a school to reach fidelity to Tier 1 implementation can vary and is influenced by factors such as PBIS team organization,
use of data to guide implementation, and formal training (Horner, Sugai, & Anderson, 2010). Sugai and Horner (2006) suggested that Tier 1 implementation with fidelity can take 3-5 years. Bradshaw, Koth, Thornton, and Leaf (2009) studied the speed with which schools implemented PBIS with fidelity and the factors related to the time required to reach fidelity. The School-wide Evaluation Tool (SET), a validated staff self-report measure used to monitor perceptions of overall PBIS fidelity, was used annually with 37 schools across the five years of study. When training on the seven critical features of PBIS implementation (a PBIS team and coach, definitions for expected student behavior, teaching plans for expected behavior, acknowledgement system, system for responding to misbehavior, and formal system for review of disciplinary data), was paired with ongoing coaching and assistance, all schools met Tier 1 implementation fidelity within three years and 66.7% of schools implemented Tier 1 with fidelity after just one year.

Bradshaw and colleagues (Bradshaw, et al., 2008) also found many schools can be successful in implementing key components within the first year of PBIS implementation. In this study, 14 out of the 21 schools assigned to the PBIS implementation condition reached an overall 80% score of fidelity on the SET by the end of year 1. These schools maintained high levels of fidelity to Tier 1 PBIS implementation across years 2 and 3 of study as well. This finding is promising for schools because increased rates to fidelity of implementation can lead to more timely observations of the improved outcomes as well as the ability to implement the more intensive levels of PBIS (Tier 2 and 3). The staff behaviors associated with the most dramatic increases to rates of fidelity to Tier 1 PBIS practices after one year included defining and teaching student behavior expectations, monitoring and evaluating implementation, and management and
district support. Researchers concluded that more frequent checks on fidelity with feedback provided to staff would likely result in a decrease in the amount of time necessary to reach fidelity of implementation across more of the schools included in study. Since time is a limited resource in schools, school staff must leverage time to obtain implementation with fidelity as efficiently as possible.

Lane et. al (2008) extended the research on PBIS implementation by gathering three types of fidelity data on teachers’ implementation of Tier 1 practices. Specifically, this included teacher integrity ratings across components of the behavioral program implementation quarterly or monthly, self-report of fidelity to teaching and reinforcing school-wide expectations across settings in a checklist format, direct observations of teacher behavior, and analysis of the number of acknowledgements provided by teachers to students. Research assistants completed up to five 20-minute unscheduled observations monthly of randomly selected teacher participants using the same component checklist completed through teacher self-report. Teachers completed this checklist as well during the same time period of which they were observed by a research assistant. Researchers cited that observations with parallel checklist forms were used since self-report data on treatment integrity could lead to higher ratings of integrity than direct observation. In essence, this was a way for the researchers to triangulate the data in analysis of any implementation differences. Interestingly, the teacher self-reports of fidelity resulted in similar outcomes across the schools. However, there were significant differences in implementation fidelity according to the direct observation ratings by both the research assistants and teachers. For one school, the self-reports of fidelity were inflated as compared to the direct observation ratings. The frequency of which teachers delivered
acknowledgement to students for desired school behavior was also significantly different. The study found higher ratings of fidelity to overall Tier 1 implementation was associated with higher frequency of teacher to student acknowledgement.

Frequent teacher to student acknowledgement of desired school behavior has been cited as one of the most critical features of PBIS Tier 1 implementation (Horner, Sugai, & Anderson, 2010; Matthews et. al, 2014; Sugai, 2007). Not only is teacher to student acknowledgement associated with stronger and faster implementation fidelity, positive rates of teacher to student acknowledgement is associated with sustained fidelity of implementation. In a study including 261 schools across the United States, Mathews et al. (2014) used results on the PBIS Self-Assessment Survey (SAS) as a predictor variable for outcomes three years later on the PBIS Benchmarks of Quality (BoQ). According to the sections and items assessed in the SAS and BoQ, regular teacher to student acknowledgement was a statistically significant predictor of sustained implementation of Tier 1 PBIS practices.

The acknowledgement portion of PBIS Tier 1 has been shown to be a critical feature of PBIS implementation, an indicator of overall Tier 1 implementation, as well as a predictor variable in sustained fidelity to implementation (Horner, Sugai, & Anderson, 2010; Lane et. al., 2008; Mathews et al., 2014; Sugai, 2007). Given the improved outcomes associated with PBIS Tier 1 implementation, it is important to consider methods to support staff behavior in the aim of increasing rates to fidelity. Performance feedback is explored in the next section as a methodology to support the staff behavior of acknowledgement to students for desired school behaviors.
Performance Feedback

Methods of performance feedback have been studied in the behavioral consultation literature to evaluate the effectiveness in supporting teachers’ fidelity to behavioral interventions. For example, Noell and colleagues (2005) evaluated the effectiveness of three different consultation follow-up methods on teachers’ implementation of treatment plans for students. 45 teachers who referred students for behavior or academic needs, or a combination of both, were included in a study across six different elementary schools. Following the Bergan and Kratochwill (1990) behavioral consultation model including a problem identification and analysis interviews, collaborative development of intervention plans, training to teachers and students, and observation with corrective feedback to teachers for one intervention session, teachers were randomly assigned to one of three consultation follow-up methods. Teachers received weekly follow-up with the plan evaluation interview, weekly follow-up with a social influence procedure, or a brief consultation meeting where visual-performance feedback (VPF) was provided via a graph of student behavior and a graph of the steps of intervention the teacher had completed. Although there were no significant differences in the way teachers rated the consultation approaches in regards to dimensions of satisfaction and effectiveness, the VPF condition resulted in a much higher degree of treatment integrity as compared to weekly interviews and weekly interviews with commitment to implement emphasis. VPF was described as superior by researchers as it had also resulted in highest sustained treatment integrity over time.

Similarly, Sansetti, Luiselli and Handler (2007) compared two different follow-up methods to support the implementation of behavioral support plans across a team of
second grade teachers. The effects of verbal performance feedback alone and verbal performance feedback plus VPF was evaluated through an A-B-BC-B-BC design. Following an initial meeting, three hours of consultation with the teaching team, and weekly check-ins, the weekly verbal performance feedback phase was implemented when fidelity of the behavior plan dropped below 80% of components for three consecutive observations. Verbal feedback and VPF was implemented when fidelity of the behavior plan persisted below 80%. Verbal feedback alone was re-implemented following three data points with 80% fidelity to plan components. The reversal design indicated that verbal performance feedback plus VPF was superior in increasing teacher fidelity to behavior intervention plans. The average number of activities completed with appropriate behavior by students was also the highest under the VPF condition.

Solomon, Klein, and Politylo (2012) completed a meta-analysis of the existing performance-feedback studies specific to the school-based literature. 36 studies met criteria for inclusion in the meta-analysis and included studies between 1973-2011. All but four studies included a graph within the performance-feedback condition. Findings indicated that performance-feedback resulted in significant behavioral change on the part of general and special education teachers, regardless of behaviors targeted, setting, and immediacy of feedback. However, higher levels of effectiveness were found when performance feedback was used to support general education teachers over special education teachers and academic interventions over behavioral interventions. Further, outcomes were strongest when performance feedback was provided immediately or daily rather than weekly. Descriptive analysis indicated that graphical feedback (VPF) increased the effectiveness over verbal feedback alone.
Rienke, Lewis-Palmer, & Martin (2007) evaluated the effectiveness of VPF on increasing three teachers’ classroom use of behavior-specific praise to target improvements in the behavior of six 3rd grade students. Teachers experienced group consultation around using effective praise, practicing behavior-specific praise, and interpreting graphical feedback (VPF) on use of praise to students. A multiple-baseline design across classrooms was used with the start of VPF provision staggered across teachers. The study found that participants provided low and inconsistent rates of behavior-specific praise to students following group consultation, but all teachers showed immediate increases in behavior-specific praise to students following the provision of daily VPF. All teachers increased in their use of praise in total and increased their use of behavior-specific praise over general praise. Further, reductions in student disruptive behaviors occurred. In a similar study, Rienke, Lewis-Palmer, and Merrell (2008) evaluated the effectiveness of VPF on teacher rates of praise to students to support class-wide reductions in disruptive behavior. In this study, the Classroom Check-Up intervention was used with four teachers. Researchers found significant increases in teacher-delivered specific praise and decreases in student disruptive behavior when VPF was provided as compared to baseline and self-monitoring conditions. Further, effects were maintained during 3 follow-up observations 1 month after the termination of VPF.

Mesa and Lewis-Palmer (2005) also used daily observation sessions to provide two 2nd grade teachers daily VPF on their rates of student praise and found a marked increase in teacher praise and reduction in student disruptive behavior following implementation of VPF. However, unlike Reinke and Merrell (2008) they did not find consistency across participants in the ongoing rate of praise provided to students and
maintenance effects were not observed. The Reinke and Merrell (2008) study had a
stronger experimental design with implementation of VPF following stable trend in
teacher praise rates. Reinke and Marrell (2008) also included more participants in their
study. Statements about effects across participants become more evident and reliable to
report on with more participants.

In studies supporting the use of VPF to increase teacher use of specific positive
praise, one important confound exists. All of the studies gathered data via direct
observation of teacher and student behavior in the classroom. Thus, the daily social
presence of behavioral consultants in the classroom could have influenced changes in
teacher or student behavior. Additionally, one may argue that in studies like Mesa and
Lewis-Palmer (2005), Rienke, Lewis-Palmer, and Martin (2007), and Rienke, Lewis-
Palmer, and Merrell (2008) where only 2-4 teachers were participants it may be feasible
to observe each classroom daily and provide immediate feedback. However, when
implementing practices system-wide, such as providing VPF to many more teachers than
these researchers, daily observation of teacher behavior would be inefficient. Schools
would also unlikely have the resources to implement frequent direct observations across
many staff; similar to what is made possible through research grant funding.

Witt and colleagues (1997) did not use the time-consuming process of daily
classroom observations when exploring methods to enhance teacher adherence to
intervention plans. In their study, eight elementary school teachers were provided daily
verbal and visual feedback on intervention fidelity via a review of permanent products
from the intervention. Specifically, teachers were to use reward slips to indicate student
completion of academic assignments associated with the intervention. The number of
reward slips used by teachers was graphed for VPF as an indicator of completed
treatment steps. The consultant met daily with the teachers to provide the academic
outcome data, VPF, and corrective feedback on missed intervention steps. Across the
multiple-baseline design across the eight teachers, strong improvements to percent of
completed intervention steps and improved student academic performance was found
following implementation of VPF and verbal feedback. Researchers suggested that the
collection of permanent product data was a strong point of the study as it was more
efficient than classroom observations and still yielded results. In this study, the daily
meetings with teachers confounded the effects of VPF alone and use of permanent
product data. VPF and permanent product data appear to offer an opportunity to improve
fidelity to PBIS Tier 1.

Statement of the Problem

The acknowledgement portion of PBIS is a critical feature of Tier 1 in promoting
positive student outcomes (Horner, Sugai, & Anderson, 2010; Sugai, 2007). Research has
found the acknowledgement system to be an important predictor of immediate and
sustained fidelity to PBIS Tier 1 practices (Mathews, McIntosh, Frank, & May, 2014).
Schools could more quickly benefit from the PBIS Tier 1 outcomes through strategies to
support teachers’ fidelity in implementing Tier 1 PBIS practices. VPF is shown to be an
effective method for teacher adherence to behavioral interventions (Solomon, Klein, &
Politylo, 2012). However, no study to date has evaluated the effectiveness of VPF on
teachers’ use of acknowledgement within a PBIS system. The permanent product data
afforded through the PBIS acknowledgement system would make a teacher-specific
indicator of fidelity efficient to implement at a systems level.
Research Questions

The primary question examined in this study is if the collection of permanent product data as an indicator of the frequency of teacher to student acknowledgment of desired school behaviors and VPF on frequency of teacher to student acknowledgment of desired school behaviors can be effective at increasing frequency of acknowledgement and decreasing office discipline referrals (ODRs) within a PBIS Tier 1 system. Second, the social acceptability of VPF as a way to provide feedback to teachers on an aspect of PBIS implementation is explored.
CHAPTER II

Method

This chapter describes the context, measures and procedures used to examine if providing teachers with graphs of their frequency of student acknowledgment for positive school behavior increased the frequency with which acknowledgements were provided. Additionally, office discipline referral data was collected to determine any relationship between teacher frequency of acknowledgement and frequency of office referral. A social validity measure was also completed by participating teachers.

Setting

Data collection took place in a rural Midwestern elementary school in Wisconsin during the Spring of 2011. The elementary school was located within a kindergarten through twelfth grade building with natural hallway boundaries between the middle and high schools creating a separation between the other grade levels. The elementary school site was selected based on researcher’s relationship with school staff as a school psychology practicum student. The elementary school was comprised of 437 kindergarten to fifth grade students. Eighty-six students were enrolled in kindergarten, 69 in first grade, 56 in second grade, 83 in third grade, 73 in fourth grade, and 70 in fifth grade. The average class size was approximately 22 students, with 3 to 4 class sections per grade level. According to demographic data the year of study, 53.5% of elementary students were female and 46.5% male (Department of Public Instruction [DPI], n.d.). Further, 95% were White, 3.4% Hispanic, and 1.4% Black. Forty-six percent of students were eligible for free and reduced lunch and 15% received special education services. Less than 2% of students were English Language Learners.
**PBIS Implementation.** The elementary school was in year one, or the initial implementation phase, of PBIS. This means that prior to the study, the elementary school had established school-wide rules and corresponding school behavior expectations, office discipline referral procedures, and some components of a reward system. A designated team of staff had attended three all-day Tier 1 trainings in the fall, winter, and spring during the year of the study. School staff supporting implementation included 27 licensed, full-time teachers, a Response to Intervention coach, a PBIS internal coach, a full-time principal, and a district-wide school psychologist. The PBIS team believed implementation was progressing positively. No baseline office discipline referral data was gathered prior to the study. Due to the newness of PBIS implementation, no school assessment surveys had been completed prior to data collection; therefore, the state of PBIS implementation at the time of study was based on the PBIS team observations only.

**Participants**

All ten third through fifth grade teachers consented to participation in the study. However, despite consenting to participate, one teacher did not turn in weekly data and therefore was excluded from study. This resulted in nine total participants. All teachers were licensed and employed full-time by the elementary school. Of the nine participants, four were male and five female. Data on years of teaching experience, certified licensure areas, and other participant demographic information was not collected. Some participants were also on the school’s PBIS team, however, formal data was not collected on which participating teachers this applied to.
Measures

**Teacher Acknowledgements.** The school’s acknowledgement slips (Figure 1) were formed into 500 page booklets that were provided to all teachers. A carbon-copy page was between each acknowledgement slip in the booklet, which served as a permanent product following teacher delivery of acknowledgement to individual students. The permanent product allowed the researcher to track frequency of teacher-delivered acknowledgements. Teachers were instructed during the informed consent procedure to give students an acknowledgement slip when they were observed to display positive school behaviors consistent with expectations for being safe, responsible, or respectful as found in the school’s behavioral expectation matrix.

**Figure 1**

*Acknowledgement Slip used Across Participants*

![Acknowledgement Slip](image)

**Office Discipline Referrals.** A summary report of major and minor office discipline referrals combined per teacher per week was gathered for the duration of the study. Minor office discipline referrals included any classroom-managed violation of behavioral expectations. Major office discipline referrals included any behavioral violation of greater severity managed by administration. This information was gathered
using the school’s online School-Wide Information System (SWIS) platform. This data was gathered to assess any changes in teacher referrals for inappropriate student behavior as the result of visual-performance feedback.

Teacher Perception Survey. An eight-item teacher survey assessed teacher beliefs about the usefulness, intrusiveness, and feasibility of receiving feedback on implementation of the PBIS acknowledgement system via visual performance feedback (Appendix C). Reinke, Lewis-Palmer, and Martin’s (2007) social validity measure was adapted to fit the purpose of this study. Specifically, items referred to the use of frequency graphs representing rate of teacher acknowledgment of desired student behavior through consumed acknowledgement slips, rather than frequency data from classroom observations of teacher behavior. Additionally, teacher self-report of VPF as an indicator of teacher fidelity to dissemination of acknowledgment slips was included in the social validity measure per Reinke, Lewis-Palmer, and Martin’s (2007) recommendations. The survey utilized a Likert rating that varied some in terminology, but overall represented 5 = strongly agree, 4 = agree, 3 = somewhat agree, 2 = somewhat disagree, 1 = disagree.

Procedures

Informed Consent. Consent for the study was first obtained from the school superintendent, elementary principal, and PBIS coach. A Memorandum of Agreement (Appendix A) stated how data from the school would be shared for research purposes. Following school approval, the researcher presented details about the study at a staff meeting. Following the staff meeting, which included instruction on how to use the acknowledgement booklets, teachers consented to participation by returning their signed
consent forms to a designated area in the staff lounge (Appendix B). They were instructed to return the forms to the envelope by the end of the day regardless of whether they consented to participation. This was a step to assure confidentiality of participating teachers at the school. An additional step to assure confidentiality was that all teachers in the elementary school received acknowledgement slip books. Each acknowledgement slip book had teacher code numbers on them. The code number was associated with names of teachers who consented to participate. The researcher kept teacher names confidential.

**Teacher Training.** During the same staff meeting, teachers were shown how to use the acknowledgement slip books when acknowledging desired student behavior. During the presentation, teachers were reminded of the school’s school-wide expectations and positive student behaviors that would warrant acknowledgement and provision of an acknowledgement slip. Second, teachers were provided an example visual-performance graph depicting how they could read and understand the VPF that would be disseminated to them. The researcher explained and answered any questions about the graph’s characteristics; such as the x axis representing the week the graph was provided and the y axis representing the number of acknowledgement slips delivered that week. The presentation also covered the positive relationship between teacher frequency of acknowledgement and student positive school behaviors. Teachers were encouraged to use the visual-performance graphs to guide their ongoing delivery of acknowledgement to students in a confidential manner and were discouraged from sharing their VPF information with others.

**Baseline.** Baseline data collection began during second semester for all participating teachers. It occurred during the first two weeks after the staff presentation
on delivering acknowledgements to students using the universal acknowledgement slip books. Baseline data collection included two school weeks of acknowledgement slip use where no visual-performance feedback was provided to any participants. Teachers placed their carbon copy acknowledgement slips from the school week in a designated envelope and designated location. This allowed the researcher to keep the information private.

**Visual-Performance Feedback.** All teachers received visual-performance feedback graphs for four consecutive weeks. The visual-performance feedback was provided in a sealed envelope where the teacher number was labeled inside on the graph. The graphs included the two baseline data points in addition to a new data point each week during the intervention phase. Each data point indicated frequency of teacher acknowledgement slips used per week. No additional follow-up was provided to any teacher, only visual-performance feedback was provided.

**Maintenance.** During the maintenance phase, no visual-performance feedback graphs were provided to teacher participants. Teachers continued to use the acknowledgement slips to reinforce students for following positive school behaviors. Due to a school event, data was not collected on week 8 for any teacher participant during the maintenance phase. This resulted in 2 data points during the maintenance phase.

**Experimental Design**

This study used an A-B-A single-case design to determine any association of the visual-performance feedback on teachers’ implementation of acknowledgement to students. Each teacher was a single-subject with consistency of design across participants. All nine participants experienced the same treatment: two weeks of baseline data collection with no visual-performance feedback provided, four weeks of visual-
performance feedback, and three weeks of data collection with no visual-performance feedback provided for analysis of any maintenance effects.
CHAPTER III

Results

To examine whether providing teachers with visual-performance feedback (VPF) on their frequency of acknowledgement to students for desired school behavior resulted in change to the rates with which teachers acknowledged students or referred students for disciplinary action, data was examined through visual analysis and calculation of Percent of Nonoverlapping Datapoints (PND). Olive and Franco (2008) indicated that in addition to PND, visual analysis should include description of trend, or the overall direction of data, variability in the data set, and level of change in regards to mean performance. Mean rates of acknowledgement and mean rates of office discipline referrals are reflected for teachers for each condition in Table 1 and Table 2. In regards to use of PND, in Olive and Franco’s (2008) review of measures to evaluate effect size in single-subject design, PND is recommended when quantifying the degree of behavior change particularly when the aim of treatment is an increase in behavior that is being evaluated. PND was calculated by obtaining a percent of data points during VPF that were higher in value than the greatest baseline data point. PNDs that exceed 90 are considered highly effective outcomes, 70-90 effective, 50-70 moderate, and below 50 ineffective (Scruggs & Mastropieri, 1998). Frequency of office discipline referrals per teacher per week was also graphed similar to acknowledgement frequency to visually assess any patterns between the two frequency rates. The results in this chapter are summarized by grade level as other similarities across participants were not noted.
Table 1

Mean Rates of Acknowledgement per Condition

<table>
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<tr>
<th>Teacher</th>
<th>Grade</th>
<th>Baseline</th>
<th>VPF</th>
<th>Maintenance</th>
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<td>1</td>
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<td>2</td>
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<td>57.5</td>
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<td>3</td>
<td>5th</td>
<td>24</td>
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<td>4</td>
<td>4th</td>
<td>18.5</td>
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<td>39.5</td>
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<tr>
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<td>3rd</td>
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<td>4.5</td>
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<tr>
<td>10</td>
<td>3rd</td>
<td>48.5</td>
<td>51</td>
<td>53</td>
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Note: VPF = Visual Performance Feedback.

Table 2

Mean Rates of ODRs per Condition

<table>
<thead>
<tr>
<th>Teacher</th>
<th>Grade</th>
<th>Baseline</th>
<th>VPF</th>
<th>Maintenance</th>
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<td>1</td>
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Note: VPF = Visual Performance Feedback.

Third Grade

Figure 2 shows that a stable baseline was achieved across three of four third grade teachers (1, 2, and 6). Teacher 10 demonstrated variability in frequency of acknowledgment both at baseline and during the VPF condition. The increasing rates of acknowledgement during baseline make causal inferences about the effects of VPF difficult to determine for teacher 10. Table 1 illustrates that teacher 10 showed some increase in their mean level of acknowledgement at VPF and maintenance conditions as
compared to baseline and maintained a low weekly rate of ODR. Teachers 1, 2 and 6 showed changes in the level and trend of acknowledgement frequency following VPF. For teachers 1 and 2, frequency of acknowledgement were lower and trended downward during VPF, except the final week of VPF where teacher 2’s acknowledgement frequency increased to levels demonstrated during baseline. In contrast, teacher 6’s acknowledgement rates increased and trended upward until the last week of VPF where rates declined.

Relative to the VPF condition, all teachers showed initial increases in the frequency of acknowledgement during the maintenance phase, but the frequency trended downward in week 9. Percent of Nonoverlapping Datapoints for third grade teachers ranged from no effects to moderate effects (PND = 0-50%), suggesting VPF had limited to no relationship to the frequency with which teachers acknowledged students for desired school behaviors.

Figure 3 and Table 2 shows that discipline referrals were relatively stable and low across 3rd grade teachers. Teachers 1 and 2 had zero discipline referrals across all conditions. ODRs decreased for teachers 6 and 10 after the introduction of VPF, however, ODR rates were in a downward trend during baseline. It is interesting to note that teachers 6 and 10, who showed some increases in acknowledgement frequency with the implementation of VPF, also had higher ODRs during baseline and decreases in ODRs after implementation of VPF.
Figure 2

*Third Grade Teacher Participant Acknowledgement Use Frequency*

![Graph showing Third Grade Teacher Participants](image1)

Figure 3

*Third Grade Teacher Participant Office Discipline Referral Frequency*

![Graph showing Third Grade Teachers](image2)
Fourth Grade

Figure 4 shows that a stable baseline was achieved for teacher 8, but teacher 4’s acknowledgement frequency showed an increasing trend during baseline. Teacher 8’s acknowledgement frequency was more variable during the VPF condition; however, mean acknowledgement frequency was higher as demonstrated in Table 1. Variability is noted, particularly for Teacher 8 week to week, but an overall downward trend is observed in Teacher 4 with an overall upward trend for Teacher 8. During VPF, teacher 8 demonstrated a higher change in level, as compared to teacher 4. Both 4th grade teacher participants demonstrated no effect of VPF on teacher frequency of student acknowledgement as demonstrated by PND (PND = 0-25%). Teacher 4 demonstrated higher frequency of acknowledgement following the removal of VPF. Trend is difficult to evaluate for Teacher 8 at maintenance given no record of acknowledgement delivery additionally on week nine.

Frequency of office discipline referrals were variable across conditions for Teacher 4, with variability also observed in Teacher 8 during maintenance. Teacher 8 demonstrated reduced office discipline referrals during VPF as reflected in downward trend and mean difference as compared to baseline and maintenance conditions.
**Figure 4**

*Fourth Grade Teacher Participant Acknowledgement Use Frequency*

**FOURTH GRADE TEACHER PARTICIPANTS**

- **Baseline**
- **VPF**
- **Maintenance**

![Graph showing the use frequency of acknowledgement for fourth grade teachers](image)

- Teacher 004
- Teacher 008

**Figure 5**

*Fourth Grade Teachers Office Discipline Referral Frequency*

**FOURTH GRADE TEACHERS**

- **Baseline**
- **VPF**
- **Maintenance**

![Graph showing the referral frequency for fourth grade teachers](image)

- Teacher 004
- Teacher 008
Fifth Grade

Figure 6 shows that a stable baseline was achieved for Teacher 3 and 5. Variability in dissemination of acknowledgement was observed for Teacher 7 during baseline. Changes in level of acknowledgement delivery as reflected by means was observed across all 5th grade teachers as compared to baseline. However, an outlier on week 3 for Teacher 7 explains the mean level difference observed during VPF. Visual analysis indicates that teacher 7 demonstrated the highest rates of acknowledgement of any teacher; however, acknowledgment rates trended downward in the VPF condition.

Teacher 5 demonstrated a significant effect of VPF (PND = 100%), with a high change in level (17.5). Moderate effects of VPF on teacher rates of acknowledgement to students is noted for Teacher 3 and 7 (PND = 50-75%). Table 1 illustrates that teacher 5 increased in their provision of acknowledgements to students following removal of VPF as compared to the VPF phase. Similarly, Teacher 7 demonstrated an upward trend during the maintenance condition whereas limited data for Teacher 3 makes it difficult to evaluate any trends at maintenance.

Teacher 7 did not complete any ODRs throughout all conditions. A decrease in discipline referrals was observed during baseline for Teachers 3 and 5. Teacher 3 demonstrated the highest rates of ODRs of any teacher and variability in ODRs during VPF. However, Teacher 3 did show a mean decrease in referrals during maintenance (Table 2). Teacher 5 demonstrated a change in level of office discipline referrals during and following the provision of VPF.
Figure 6

*Fifth Grade Teachers Acknowledgement Use Frequency*

![Fifth Grade Teachers Acknowledgement Use Frequency Graph](image)

Figure 7

*Fifth Grade Teachers Office Discipline Referral Frequency*

![Fifth Grade Teachers Office Discipline Referral Frequency Graph](image)
Teacher Perception Survey

Teachers’ social acceptability data are illustrated in Table 3. Overall, teachers agreed that VPF helped them to be aware of their use of acknowledgement within the school’s PBIS Tier 1 (M = 3.6, Item 1) and that they would recommend VPF to other teachers (M = 3.8, Item 7) as it is not viewed as intrusive to their routine practice (M = 4.2, Item 6). Seven out of nine teachers thought visual-performance feedback would be most useful on a weekly basis, which was more accurately indicated in the frequency of that rating than in the mean (M = 2, Item 8). However, their perception of the impact of VPF on their acknowledgement frequency was rated lower (M = 2.9, Item 5) and they did not view VPF as a meaningful indicator of teacher fidelity to implementation of acknowledgement to students for desired school behavior (M = 3.1, Item 4).

Table 3

Teacher Perception Survey Ratings

<table>
<thead>
<tr>
<th>Item</th>
<th>Mean</th>
<th>Mode</th>
<th>Range</th>
<th>Standard Deviation</th>
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<tbody>
<tr>
<td>1) The graphs I received helped me to be aware of my use of acknowledgements within our school’s PBIS implementation.</td>
<td>3.6</td>
<td>3</td>
<td>3-5</td>
<td>.69</td>
</tr>
<tr>
<td>2) I used the graphs I received to change my delivery of acknowledgements to students for desired school behavior.</td>
<td>3.4</td>
<td>3</td>
<td>3-4</td>
<td>.7</td>
</tr>
<tr>
<td>3) A graph with data is a realistic way to providing feedback to teachers on their delivery of acknowledgements within a PBIS system.</td>
<td>3.3</td>
<td>3</td>
<td>3-4</td>
<td>.63</td>
</tr>
<tr>
<td>4) Graphical feedback is a useful tool to show teacher fidelity to the use of acknowledgements within a school’s PBIS system.</td>
<td>3.1</td>
<td>3</td>
<td>3-4</td>
<td>.44</td>
</tr>
</tbody>
</table>
5) I found that with the provision of visual-performance feedback, my frequency of acknowledgement changed.  

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<tr>
<td>2.9</td>
<td>3</td>
<td>2-3</td>
<td>.44</td>
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</table>

6) Visual-performance feedback was not intrusive to my routine practice as a teacher.  

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<tr>
<td>4.2</td>
<td>5</td>
<td>3-5</td>
<td>.83</td>
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7) I would recommend receiving visual-performance feedback to other teachers.  

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<td>3.8</td>
<td>4</td>
<td>3-5</td>
<td>.71</td>
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8) I think visual-performance feedback is, or would be, most useful on a ___ basis.  

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CHAPTER IV

Discussion

This chapter will revisit what the present study set out to do and summarize the results obtained. The connection to previous literature will also be explored, as well as the study’s limitations. Implications for school-based practice within a PBIS Tier 1 system and future research will also be discussed.

Study Purpose

The purpose of the study was to evaluate the effectiveness of VPF on teachers’ frequency of acknowledgement to students within a school’s PBIS Tier 1 system of support. The systematic collection of acknowledgement data coupled with VPF was expected to impact awareness of the system and result in increased teacher frequency of acknowledgement to students for desired school behavior. VPF was also expected to result in decreased rates of ODRs over time as increases in students’ positive behaviors are typically associated with decreases in problematic behavior (Mesa, Lewis-Palmer, & Rienke, 2005; Sugai, 2007; Sugai & Horner, 2006). Finally, social acceptability data was collected to evaluate the teachers’ perceptions of the usefulness and acceptability of VPF.

Summary of Findings

In summary, minimal similarities were observed in teachers’ frequency of acknowledgement to students per grade level assignment. On an individual basis, Teacher 5 demonstrated an upward trend during the provisions of VPF whereas Teacher 1 demonstrated a downward trend. Other teachers in the sample demonstrated variability in weekly rates of acknowledgement during VPF. However, teachers 3, 5, 6, 7, 8, and 10 demonstrated a change in level of acknowledgement during the provision of VPF.
according to mean differences. During the maintenance condition, Teacher 4 and 5 were both observed to trend upward in acknowledgment rates while teachers 7 and 8 trended downward. Teacher mean levels at maintenance as compared to other conditions suggest increases in rates of acknowledgment for Teachers 2, 4, 5, 8, 10. The largest change in level for teacher to student delivered acknowledgement following baseline was observed in Teachers 1 and 5. However, Teacher 1 demonstrated a consistent decline in rates of acknowledgment according to trend and level across conditions. This would be described as the opposite outcome of what was anticipated as related to the study. Teacher 5 was the only teacher to demonstrate an overall upward trend, mean level changes across conditions, and significant PND of the nine teacher participants.

Findings indicate that VPF did not appear to share relationship with rates of teacher acknowledgement to students for desired student behavior among most teachers as low PND was found for the majority of teacher participants. Some teachers appeared to provide fewer acknowledgements to students following VPF, which was the opposite finding expected within the study. There did appear to be changes in frequency of teacher to student acknowledgement among two teachers as VPF was associated with a moderate to strong effect (Teachers 3 and 5). While Teacher 5 demonstrated increased frequency of acknowledgement and decreased frequency of ODRs, no other teacher replicated such findings. Additionally, limitations in the study’s research design limit causal interpretations of this data.

The majority of teachers did not show reliable changes in their rates of acknowledgement during or following implementation of VPF. However, seven of nine teachers experienced low rates or decreased rates of ODRs during the VPF and
maintenance phases. Three out of nine teachers had 0 referrals throughout the course of study, one remained consistently low, three decreased in their referral rates, and only two increased as reflected in teachers’ mean levels. The three teachers that decreased in their office referral rates are also teachers that increased in level of their acknowledgment rates.

Although teachers found the VPF acceptable and helpful in increasing awareness of the acknowledgement system according to the social acceptability measure, it did not translate to significant changes in behavior on part of the teacher. Interestingly, the teachers also acknowledged that it did not significantly impact their rates of acknowledgement in their survey responses and that it is unlikely useful in showing teacher fidelity to the acknowledgement system within a school’s PBIS Tier 1. However, teachers reported the methodology as non-intrusive and would recommend to others.

Implications

Findings of this study indicate that VPF on a weekly basis through collection of permanent product acknowledgement data is not effective in increasing teachers’ delivery of acknowledgements. This could be associated with a variety of factors, including the frequency with which VPF was provided, the timing of the study as situated within the school year, or already sufficient acknowledgement rates. A great deal of studies that have used VPF as the sole or combined feature of consultation to teachers provided it on a daily basis (Soloman, Klein & Politylo, 2012). Although the meta-analysis conducted by Solomon, Klein, and Politylo (2012) indicated an insignificant effect size difference between studies that provided VPF daily verse weekly, greater effects were typically found in studies that provided VPF daily.
It could be that the time the study was conducted shared a relationship to the frequency with which teachers were already acknowledging students. PBIS Tier 1 implementation was “rolled out” in the fall of the school year of study. That means in the fall, a great deal of time was allocated to the explicit teaching of expectations to students. High frequency of teacher to student acknowledgement for desired school behaviors following the explicit teaching of expectations would be considered the most critical timing within the PBIS literature (Bradshaw, et. al., 2008; Lane, et. al., 2008; Sugai, 2007). Implementing the study in the fall may have had more substantial effects on teacher rates of acknowledgement to students for desired school behavior as a newly implemented teacher behavior. Into the spring, during the time with which the study was conducted, teachers may have already acknowledged students at high frequency as recommended within the PBIS literature and therefore frequency may be expected to diminish or not require any sharp increase.

Limited information exists to determine frequency of teacher acknowledgement to students for desired school behaviors that is associated with adequate fidelity to this portion of the PBIS Tier 1 system. Studies that have provided VPF to teachers based on observations of specific, contingent praise cite a four or five to one ratio between positive to negative statements to students (Mesa, Lewis-Palmer & Reinke, 2005; Reinke, Lewis-Palmer & Martin, 2007; Reinke, Lewis-Palmer & Merrell, 2008). However, this commonly published ratio doesn’t translate to the frequency that acknowledgment slips need to be delivered to students. Lane and colleagues (2008) found that low-risk students in one school had, on average, 13 acknowledgement slips monthly and in another school 26 acknowledgement slips monthly. Teacher 7 and 10 demonstrated commensurate levels
of acknowledgement as compared teachers in Lane and colleagues’ (2008) study. Adequate rates of acknowledgement that already existed for Teachers 7 and 10 could explain why further increases were not, or would not, be found. It could be for these two teachers, a “ceiling” for frequency of delivery of acknowledgment slips may have already been met and it would therefore be unrealistic to expect attainment of higher rates.

ODRs are often viewed as a primary indicator of PBIS Tier 1 effectiveness (Horner, Sugai & Anderson, 2010; Horner, Sugai & Lewis, 2015; Nelson, Martella & Galand, 1998; Sugai, 2007). As fidelity to PBIS Tier 1 implementation increases, frequency of ODRs is expected to decrease. This has been validated in research associated with scores on the Benchmarks of Quality (BoQ) as compared to ODR frequency (Cohen, Kincaid & Childs, 2007) as well as literature on the effectiveness of explicit teaching of expectations on ODR frequency (Nelson, Martella & Galland, 1998). Seven out of nine teachers demonstrated low ODRs or decreased ODRs across the course of the study. Teachers 1, 2, and 7 demonstrated low incidents of ODRs which may serve as an indicator of adequate implementation of PBIS Tier 1 practices regardless of any component of study. Teachers 5, 6, and 10 demonstrated decreased frequency of ODRs through the course of study with Teacher 8 decreasing in ODRs during the VPF phase. Teacher 4 demonstrated some variability in ODRs and teacher 3 was the only teacher to increase in ODRs. This finding may suggest that VPF was more effective at indirectly altering rates of ODRs than it was at impacting rates of acknowledgement.
Limitations of the Study

**Participants.** Some demographic information was not obtained regarding the participants included in the study. Although information about school factors such as free/reduced lunch status, population of students with and without disabilities, students of English second language, teacher’s assignment to grade level, class sizes, and performance on school accountability measures was all obtained from the Wisconsin Department of Public Instruction, teachers were not explicitly asked questions around their experience and classroom make-up. For example, it would have been useful to survey consenting participants around aspects such as their years of teaching experience, licensure credentials, individual classroom demographic make-up, current status of PBIS Tier 1 implementation specific to their classrooms, status of formal training or self-efficacy of classroom behavior management, and view on the importance of teacher delivery of acknowledgement to students for desired school behaviors. This additional information could have provided insight to teachers differing frequency of acknowledgement to students throughout the course of study, as well as potentially their frequency of ODRs and any relationship or change to perceptions surrounding aspects of PBIS Tier 1, acknowledgement, or VPF pre- and post- study.

**Data Point Frequency.** A limited set of data points at baseline is considered a limitation to study. Limited data points makes it difficult to interpret changes in data during the provision of VPF relative to the baseline condition. Due to the nature of the acknowledgement slip leaving a remnant visible to teachers during baseline, or a permanent product, it is also likely baseline wasn’t actually a pure baseline measurement. Since permanent products could have influenced teacher rates of acknowledgement
without VPF, gathering a stable baseline prior to implementation of VPF was all the more important. Baseline was described as stable for six out of the nine teacher participants, and interestingly, all three teachers with a baseline described as unstable prior to implementation of VPF had an increase in trend of acknowledgement (Teachers 4, 7, and 10). This could suggest that for those three teachers, permanent product remnants may have been sufficient in increasing acknowledgement to students for desired school behavior without VPF.

The most visible limitation regarding data point frequency observed across Figures 2, 4, and 6 is that no frequency data around teacher-to-student acknowledgement was obtained for any teacher on week 8. Although the school principal explained that this was due to alternative reward activities associated with a school-wide celebration, it makes it difficult to fully evaluate the effects of VPF on teacher frequency of acknowledgement within the maintenance phase for any participant due to the further decreased amount of data points. A limited set of data points collected during maintenance is especially true for teacher 3 who used acknowledgment slips from other teachers for week 9. Due to the numbering system associated with tracking acknowledgment frequency per teacher participant, this created a barrier to accurate reporting for the researcher which ultimately resulted in the additional exclusion of data point 9 for teacher 3.

**Fidelity of Praise Statements.** The permanent product aspect of data collection that may be considered a strength due to efficiency is also considered a weakness due to potential inaccuracies in what it is intended to represent. Each permanent product that remained following the dissemination of the slip to the student was intended and assumed
to represent a specific, contingent, praise statement to a student for demonstrating desired school behaviors. However, it could be that some teachers actually acknowledged more than their VPF graphs suggest due to verbally providing praise but not coupling it with the provision of the acknowledgement slip. This would result in deflated rates of teacher to student acknowledgment frequency illustrated in VPF. Conversely, the opposite could have occurred, teachers could have disseminated the acknowledgement slip counted towards frequency on the VPF graph without a high-quality verbal praise statement. This would result in inflated frequency of teacher-to-student acknowledgement with potential mismatch to student outcomes as the result of diminished effectiveness of the practice. This also impacts interpretation of ODR frequency as related to VPF as it is difficult to associate VPF with the low and decreasing rates of ODRs across the majority of teachers when the acknowledgement frequency varied, as indicated by the permanent product data, across teachers.

**Experimental Design.** During participant consenting procedures, all teachers underwent an overview on the acknowledgement portion of PBIS through presentation. The intention was to provide an “evening of the playing field” to teachers regarding their background knowledge on this aspect of PBIS Tier 1 implementation as some had undergone formal training and some had not. However, it could have brought awareness of acknowledgement implementation sufficiently for some teachers on its own and resulted in an increased use of teacher to student acknowledgement regardless of permanent product data collection and VPF. Additionally, the permanent product data also could have resulted in sufficient impact for some teachers to create awareness around their frequency of acknowledgement due to the slips that were left in their
possession without the additional need for VPF. Had additional time been available
within the school year during data collection, a different experimental design could have
been employed to evaluate the effectiveness of VPF with ability to make causal
statements. The A-B-A single-subject design does not allow for interpretation of causal
influence of VPF on teachers frequency with which they acknowledged students or
referred to the office regardless of any other confounds. Additionally, greater ability to
generalize statements of findings would have been associated with the use of multiple
baseline across participants methodology over single-subject design.

Although researchers such as Bradshaw and colleagues (2008) and Lane and
colleagues (2008) suggest that additional direct measures are warranted within a PBIS
Tier 1 system to support increases to implementation fidelity, the current study may
support that it is not necessary in most applications of PBIS. It is likely that changes in
student behavior can reinforce teachers’ use of acknowledgements without additional
measures beyond what is recommended in the Center on Positive Behavior Interventions
and Supports’ Blueprint and Self-Assessment Guide (2004). The most consistent finding
observed across teacher participants was a low or decreased frequency with which
students were referred for disciplinary action (ODRs). The current study did not find VPF
to play a role in the frequency with which teachers acknowledged students or provide
enough evidence to suggest a causal relationship between the frequency teachers
completed ODRs. However, the current study may find some consistency with what has
been cited in the literature regarding sensitivity and patterns of ODRs as a valid and
reliable indicator of the implementation and success of PBIS Tier 1 implementation
(Clonan, et. al., 2007; McIntosh et. al., 2009; Tidwell, Flannery & Lewis-Palmer, 2003).
Future Research

Future research should explore the efficacy of permanent product data as a tool for providing VPF to teachers as a consultative agent, particularly at the systems-level. Future researchers should consider a degree of direct observation as an indicator of reliability of the dependent variable. A randomized 20-minute observation session similar to Lane and colleagues (2008) to directly measure frequency of teacher-to-student acknowledgement for desired school behavior as compared to frequency with which the permanent product data reflects this frequency would assist in validating the permanent product data as a reliable indicator or not. Some level of direct observation, or fidelity check on the accuracy of acknowledgement provision, could assist in assurance of the accuracy behind the permanent product data collection measures similarly to what Witt and colleagues (1997) were able to accomplish. The direct observation could also consider the quality of teacher to student acknowledgement through recording of specific verse non-specific praise statements similar to Reinke, Lewis-Palmer, and Martin (2011). VPF that includes permanent products associated with acknowledgement and direct observation would likely add additional consultative value as well as greater assurances to the accuracy of the permanent product data.

Similar research that extends the scope and reduces limitations observed within the present study may consider a multiple baseline across participant methodologies more similar to Reinke, Lewis-Palmer, and Martin (2007), Noell and colleagues (2005), and Sanetti, Luiselli, and Handler (2007). Also consistent with Myer’s and colleagues (2011) response-to-intervention methodology applied to consultation with teachers, this type of methodology could be replicated to conditions consistent within the present study.
Conditions could include training around the acknowledgement system only, training plus permanent product remnants, and training plus permanent products and VPF based on individual teacher frequency of acknowledgment and ODRs. The frequency with which VPF is provided could also be explored within the latter conditions, as research may find weekly VPF as sufficient at increasing teacher to student acknowledgement for some while daily VPF more effective for others. Although Solomon, Klein, and Politylo’s (2012) meta-analysis revealed no significant difference in effect sizes based on immediate, daily, or weekly VPF, this finding could apply differently to the use of permanent product data rather than direct observation as the measure of the dependent variable.

Another future study consideration as supported by Solomon and colleagues (2012), would be to examine the effectiveness of observation alone. These researchers suggested that the social impact of presence for classroom observations may have sufficient effect on treatment integrity for some teachers. It would be interesting to compare differences in the effects of classroom observations alone, outcomes obtained from teachers that are provided VPF on permanent product acknowledgement data with some randomly assigned observation on subsequent PBIS Tier 1 outcomes.

Summary

The current study set out to evaluate the effectiveness of VPF on teacher frequency of acknowledgement within a PBIS Tier 1 system of support as well as subsequent impacts on frequency of ODRs and the social acceptability of the procedure within school-based practice. Although the majority of findings indicate minimal to no effect or relationship of VPF on teachers’ frequency of acknowledgement or ODRs, VPF
continues to hold promise as an effective consultation method as reflected in previous literature (Solomon, Klein, & Politylo, 2012). Future study with further consideration of efficacy of permanent product data as the primary dependent variable is warranted due to the feasibility within school-based practice. Future researchers are encouraged to use a stronger experimental design with attention to the utility of the permanent product as a measure and varying levels of consultative support as needed by teacher participants. Additionally, teachers reported the methodology was not intrusive to their practice and they would recommend it to other teachers.
References


APPENDIX A
Memorandum of Agreement

Letter of Agreement to Allow in Study:

The Mondovi School District, Principal, and PBIS coach, grant researcher Robin Frei permission to recruit teachers of the Mondovi School District for participation in her study: Consultation with Teachers: Visual-Performance Feedback on use of Acknowledgement within PBIS. This will involve allowing Robin Frei to present information about the study and consent procedures to teachers at a staff meeting. This will allow the researcher to obtain consenting Mondovi School District teachers as participants. Participation will occur during typical school hours. Participation will not change school district curriculum scope and sequence in any way. Further, participation will not interfere with instruction provided to students. School district administrators, the principal, and the PBIS coach understand that teachers consent to participate is voluntary, and that participants' identities will not be disclosed.

The researcher will obtain data from school records on a weekly basis. Data collected will include 1) the number of acknowledgements provided by participating teachers, as determined from a review of the acknowledgement booklets used by teacher staff within the school's PBIS system, and 2) archival data regarding weekly office discipline referral rates for the school. The researcher will then deliver graphs summarizing individual rates of providing acknowledgements to participating teachers via the teachers' mailboxes. Data collection for the study will take approximately 14 weeks. Individual teacher time required for participation is estimated to be approximately two hours over the course of the 14 weeks. No intonation directly linked to student names will be accessed.

The Mondovi Elementary thanks you for your interest in study at our location,

Cheryl Gullicksrud
Superintendent, Cheryl Gullicksrud

Paul Franzwa
Elementary Principal, Paul Franzwa

Archie Tate
PBIS Coach, Archie Tate
APPENDIX B
Voluntary Consent Form

Title of Investigation: Consultation with Teachers: Visual-Performance Feedback on use of Acknowledgement within PBIS

Names of Principal Investigators: Robin Frei, M.S.E.
Mary Beth Tusing, Ph.D.

This document is to certify that I, ____________________________, hereby agree to participate as a volunteer in a study as an authorized part of the educational and research program of the University of Wisconsin-Eau Claire under the supervision of Dr. Mary Beth Tusing.

- The research project and my role in the research project has been fully explained to me by Robin Frei, and I understand her explanation as well as what will be expected of me by virtue of my participation in this research project. A copy of the procedures of this investigation and a description of any risks, discomforts and benefits associated with my participation has been provided and discussed in detail with me.

- I have been given an opportunity to ask questions, and all such questions and inquiries have been answered to my satisfaction.

- I understand that I am free to decline to answer any specific items or questions in interviews or questionnaires.

- I understand that all data will remain confidential with regard to my identity.

- I certify that to the best of my knowledge and belief, I have no physical or mental illness or weakness that would increase the risk to me within participation in this investigation.

- I understand that participation in this research project is voluntary and not a requirement or a condition for being the recipient of benefits or services from the University of Wisconsin-Eau Claire, my school district, or any other organization supporting the research project.

- I understand that the approximate length of time required for participation in this research project is over the course of a fourteen week time period. However, the accumulated time associated with participation will be approximately 2 hours.

- I understand that if I have any questions or concerns about the treatment of participants in this study, I may call or write:

Dr. Don Bredle
Chair, Institutional Review Board for the Protection of Human Subjects
Schofield 17
University of Wisconsin-Eau Claire
Eau Claire, Wisconsin 54702-4004
Telephone: 715-836-2373

Although this person will ask my name, I understand that all inquiries will be kept in the strictest confidence.

- Furthermore, I understand that if I have any questions concerning the purposes or the procedures associated with this research project, I may call or write:

  Robin Frei
  Primary Researcher
  4705 Speros Lane 4
  Eau Claire, WI 54701
  Telephone: 715-450-4526

  Mary Beth Tusing
  Research Advisor
  Human Sciences and Services
  University of Wisconsin-Eau Claire
  Eau Claire, WI 54702
  Telephone: 715-836-5525

- I also understand that it will not be necessary to reveal my name in order to obtain additional information about this research project from the principal investigators.

- I FURTHER UNDERSTAND THAT I AM FREE TO WITHDRAW MY CONSENT AND DISCONTINUE MY PARTICIPATION AT ANY TIME.

__________________________________________________________________________
Date                                           Signature of Participant

__________________________________________________________________________
Email of Participant

I, the undersigned, have defined and fully explained the investigation to the above participant.

__________________________________________________________________________
Date                                           Signature of Investigator
APPENDIX C
Teacher Perception Survey

PBIS Study Participant Feedback

Please circle the response that best endorses your opinion to these 8 items.

Teacher Number: _____

1. The graphs I received helped me to be aware of my use of acknowledgments within our school’s PBIS implementation.

   Strongly Agree   Somewhat Agree   Agree   Somewhat Disagree   Disagree

2. I used the graphs I received to change my delivery of acknowledgements to students for desired school behavior.

   Strongly Agree   Somewhat Agree   Agree   Somewhat Disagree   Disagree

3. A graph with data is a realistic way of providing feedback to teachers on their delivery of acknowledgements within a PBIS system.

   Strongly Agree   Somewhat Agree   Agree   Somewhat Disagree   Disagree

4. Graphical feedback is a useful tool to show teacher fidelity (“faithfulness”) to the use of acknowledgments within a school’s PBIS system.

   Very Useful   Somewhat Useful   Barely Useful   Not Useful At All

5. I found that with the provision of visual-performance feedback, my frequency of acknowledgement changed.

   Very True   Somewhat True   Barely True   Didn’t Make a Difference

6. Visual-performance feedback was not intrusive to my routine practice as a teacher.

   Very True   Somewhat True   Slightly Intrusive   Moderately Intrusive   Very Intrusive

7. I would recommend receiving visual-performance feedback to other teachers.

   Highly Agree   Agree   Somewhat Agree   Slightly Disagree   Disagree